IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Tsuga, et al.	Docket:	TIJ-31619
Serial No.:	TBD	Examiner:	TBD
Filed:	Herewith	Art Unit:	TBD
For:	METHOD FOR REMOVING PARTICLES ON SEMICONDUCTOR WAFERS		

PRELIMINARY AMENDMENT

Assistant Commissioner For Patents

Washington, D. C. 20231

"EXPRESS MAIL" mailing label number EL645458384US. I hereby certify that the Preliminary Amendment and the accompanying Application is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 § CFR 1.10 on the above-mentioned date and is addressed to the Assistant Commissioner of Patents, Box New Applications, Washington, DC 20231

Allen B Kroger — DATE 2/8/02

Sir:

Before examination of the above-identified patent application, please make the following amendments:

IN THE CLAIMS:

Please amend claims 1 - 9 as follows:

1. (Amended) A method for removing particles on semiconductor wafers, comprising:

dipping semiconductor wafers in a cleaning solution tank to which a cleaning solution is fed;

feeding ultrasonic waves into the cleaning solution after the passage of a prescribed period of time since the time that the semiconductor wafers are dipped in the cleaning solution.

2. (Amended) The method for removing particles on semiconductor wafers described in Claim 1 wherein the prescribed time is 20 sec or more.

3. (Amended) The method for removing particles on semiconductor wafers described in Claim 1 wherein the prescribed time corresponds to a substitution ratio of the cleaning solution in the cleaning solution tank of 0.4 or more.

4. (Amended) The method for removing particles on semiconductor wafers described in Claim 2 wherein the feeding time of the ultrasonic waves is 400 sec or more.

5. (Amended) The method for removing particles on semiconductor wafers described in Claim 4 wherein the cleaning time for the semiconductor wafers is 600 sec or more.

6. (Amended) The method for removing particles on semiconductor wafers described in Claim 1 wherein the cleaning solution is ultra-pure water.

7. (Amended) The method for removing particles on semiconductor wafers described in Claim 1 wherein the cleaning solution is hydrogen-enriched ultra-pure water.

8. (Amended) The method for removing particles on semiconductor wafers described in Claim 7 wherein a concentration of hydrogen in the hydrogen-enriched ultra-pure water is in the range of 0.3-1.6 ppm.

9. (Amended) The method for removing particles on semiconductor wafers described in Claim 1 wherein the step of cleaning semiconductor wafers ultrasonically is performed after the step of cleaning semiconductor wafers by means of a cleaning solution mainly comprising hydrogen fluoride.

Please add new claims 10-20 as follows:

--10. (New) The method for removing particles on semiconductor wafers described in Claim 2 wherein the cleaning solution is ultra-pure water.

11. (New) The method for removing particles on semiconductor wafers described in Claim 2 wherein the cleaning solution is hydrogen-enriched ultra-pure water.

12. (New) The method for removing particles on semiconductor wafers described in Claim 3 wherein the cleaning solution is hydrogen-enriched ultra-pure water.

13. (New) The method for removing particles on semiconductor wafers described in Claim 4 wherein the cleaning solution is hydrogen-enriched ultra-pure water.

14. New) The method for removing particles on semiconductor wafers described in Claim 5 wherein the cleaning solution is hydrogen-enriched ultra-pure water.

15. (New) The method for removing particles on semiconductor wafers described in Claim 2 wherein the step of cleaning semiconductor wafers ultrasonically is performed after the step of cleaning semiconductor wafers by means of a cleaning solution mainly comprising hydrogen fluoride.

16. (New) The method for removing particles on semiconductor wafers described in Claim 3 wherein the step of cleaning semiconductor wafers ultrasonically is performed after the step of cleaning semiconductor wafers by means of a cleaning solution mainly comprising hydrogen fluoride.

17. (New) The method for removing particles on semiconductor wafers described in Claim 4 wherein the step of cleaning semiconductor wafers ultrasonically is performed after the step of cleaning semiconductor wafers by means of a cleaning solution mainly comprising hydrogen fluoride.

18. (New) The method for removing particles on semiconductor wafers described in Claim 5 wherein the step of cleaning semiconductor wafers ultrasonically is performed after the step of cleaning semiconductor wafers by means of a cleaning solution mainly comprising hydrogen fluoride.

19. (New) The method for removing particles on semiconductor wafers described in Claim 6 wherein the step of cleaning semiconductor wafers ultrasonically is performed after the step of cleaning semiconductor wafers by means of a cleaning solution mainly comprising hydrogen fluoride.

20. (New) The method for removing particles on semiconductor wafers described in Claim 7 wherein the step of cleaning semiconductor wafers ultrasonically is performed after the step of cleaning semiconductor wafers by means of a cleaning solution mainly comprising hydrogen fluoride. --

REMARKS

Entry and favorable action of the claims are earnestly solicited in light of the above amendments.

Applicants have amended the claims to place the claims inter alia to avoid multiple dependent claims and to place the claims in the appropriate form.

Early action on the merits is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current preliminary amendment. The attached page is captioned **"<u>Marked-up version to show changes.</u>"**

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

William B. Kempler
Senior Corporate Patent Counsel
Reg. No.: 28,228

Texas Instruments Incorporated
P. O. Box 655474, MS 3999
Dallas, Texas 75265
(972) 917-5452

Version to show changes made

CLAIMS

1. (Amended) A method for removing particles on semiconductor wafers, ~~characterized by the fact that~~ comprising:

~~said method for removing particles adhered to the surface of semiconductor wafers is comprised of the following processing steps:~~

dipping ~~a step in which the~~ semiconductor wafers ~~are dipped~~ in a cleaning solution tank to which a cleaning solution is fed;

feeding ~~and a step in which~~ ultrasonic waves ~~are fed~~ into the ~~aforementioned~~ cleaning solution after the passage of a prescribed period of time since the time that the ~~aforementioned~~ semiconductor wafers are dipped in the ~~aforementioned~~ cleaning solution.

2. (Amended) The method for removing particles on semiconductor wafers described in Claim 1 ~~characterized by the fact that~~ wherein the ~~aforementioned~~ prescribed time is 20 sec or more.

3. (Amended) The method for removing particles on semiconductor wafers described in Claim 1 ~~characterized by the fact that~~ wherein the ~~aforementioned~~ prescribed time corresponds to a substitution ratio of the cleaning solution in the ~~aforementioned~~ cleaning solution tank of 0.4 or more.

4. (Amended) The method for removing particles on semiconductor wafers described in Claim 2 ~~characterized by the fact that~~ wherein the feeding time of the ~~aforementioned~~ ultrasonic waves is 400 sec or more.

5. (Amended) The method for removing particles on semiconductor wafers described in Claim 4 ~~characterized by the fact that~~ wherein the cleaning time for the ~~aforementioned~~ semiconductor wafers is 600 sec or more.

6. (Amended) The method for removing particles on semiconductor wafers described in Claim 1~~, 2, 3, 4 or 5 characterized by the fact that~~ wherein the ~~aforementioned~~ cleaning solution is ultra-pure water.

7. (Amended) The method for removing particles on semiconductor wafers described in Claim 1~~, 2, 3, 4 or 5 characterized by the fact that~~ wherein the ~~aforementioned~~ cleaning solution is hydrogen-enriched ultra-pure water.

8. (Amended) The method for removing particles on semiconductor wafers described in Claim 7 ~~characterized by the fact that the~~ wherein a concentration of hydrogen in the ~~aforementioned~~ hydrogen-enriched ultra-pure water is in the range of 0.3-1.6 ppm.

9. (Amended) The method for removing particles on semiconductor wafers described in Claim 1~~, 2, 3, 4, 5, 6, 7 or 8 characterized by the fact that~~ wherein the ~~aforementioned~~ step of cleaning semiconductor wafers ultrasonically is performed after the step of cleaning semiconductor wafers by means of a cleaning solution mainly comprising hydrogen fluoride.